

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number  
**WO 2005/085815 A2**

(51) International Patent Classification<sup>7</sup>: **G01N 25/00**,  
G01F 23/00

(21) International Application Number:  
PCT/US2005/006718

(22) International Filing Date: 2 March 2005 (02.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/549,706 3 March 2004 (03.03.2004) US

(71) Applicant (for all designated States except US): **WATERS INVESTMENTS LIMITED** [US/US]; 109 Lukens Drive, New Castle, Delaware 19720 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **KENT, Richard** [US/US]; 7 Pheasant Hill Road, Norfolk, MA 02056 (US).

(74) Agent: **JANIUK, Anthony, J.**; Waters Corporation, 34 Maple Street, Milford, MA 01757 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SELF-HEATED THERMISTOR CONTROL CIRCUIT

(57) Abstract: A system and method for detecting leaks includes a sensing circuit including a first thermistor device adapted to detect a leak upon contact with a liquid, and, a second thermistor device functioning as a reference device. The first and second thermistor devices are driven with a current such that both devices operate in self-heated mode at a temperature above an ambient temperature. A control system controls a drive circuit for maintaining a constant application of power through both devices in response to a voltage monitored at a reference point in the sensing circuit including the reference thermistor. The voltage at a reference point in a portion of the sensing circuit including the first thermistor device is additionally monitored and compared with the voltage at the reference point in the sensing circuit including the second thermistor device. A leak condition is determined on the basis of a comparison result of the ambient temperature.



**WO 2005/085815 A2**